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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/776,556	02/11/2004	Jill M. Cummings	GP-303641	2777
7590 09/20/2005				
LESLIE C. HODGES General Motors Corporation Mail Code 482-C23-B21 P.O. Box 300 Detroit, MI 48265-3000			EXAMINER	
			LARKIN, DANIEL SEAN	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/776,556

Applicant(s)

CUMMINGS ET AL.

Examiner

Daniel S. Larkin

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17 is/are allowed.
- 6) ☒ Claim(s) 1-3, 7 and 8 is/are rejected.
- 7) ☒ Claim(s) 4, 5 and 9-16 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings were received on 08 July 2005. These drawings are approved.

### ***Claim Objections***

2. Claims 3-5 are objected to because of the following informalities:

Re claim 3, claim line 12: The phrase "the pump" lacks antecedent basis in the claims.

Re claim 3, claim lines 13 and 14: The phrase "the hydraulic circuit" lacks antecedent basis in the claims. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/30174 (Brown et al.) in view of US 5,902,487 (Pickering et al.).

With respect to the limitations of claim 1, the reference to Brown et al. discloses a confectionary aeration system, comprising: a reservoir/hopper/vessel (1, 1') containing the confection/fluid; an aerator (12) operatively connected to the reservoir/hopper/vessel (1, 1') to selectively aerate the confection/fluid and thereby cause the fluid to undergo a

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transient air entrainment response period wherein the amount of air entrained in the fluid varies with respect to time; and a density meter (15) operatively connected to the reservoir/hopper/vessel (1, 1') to measure the density of the confection/fluid. The reference to Brown et al. discloses that the results of the density meter are used to control the aeration of the fluid material; however, the reference fails to expressly recite a control apparatus connected to the density meter and configured to record the density of the fluid.

The reference to Pickering et al. discloses a process control system utilizing a computer (16) operatively connected to a density meter/gauge (12). The reference to Pickering et al. further discloses that the computer (16) automatically records the density values from the density gauge (12) and uses these values to maintain pre-selected density values of the material which is being recorded at any particular time. Providing a control apparatus to record density values would have been obvious to one of ordinary skill in the art as a means of providing a record of the operating conditions for further evaluation rather than relying on a transient feedback control to maintain the process.

With respect to the limitations of claim 2, the reference to Brown et al. discloses that the aerator (12) works with a hydraulic circuit (7) having an inlet (8) located in the reservoir/hopper/vessel (1, 1') and an outlet (9) in the reservoir/hopper/vessel (1, 1'), the outlet (9) being positioned above the inlet (8) so that the inlet (8) may be below the surface of the confection/fluid and the outlet (9) may be above the surface of the confection/fluid; and wherein the aerator (12) includes a pump (11) configured to cause

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the confection/fluid to circulate through the hydraulic circuit (7). The examiner argues that the aerator working in conjunction with a hydraulic/recirculation circuit is functionally equivalent to applicants' aerator and hydraulic circuit as a means of continually supplying an aerated fluid to the reservoir.

With respect to the limitations of claim 3, the reference to Brown et al. discloses a confectionary aeration system, comprising: a reservoir/hopper/vessel (1, 1') containing the confection/fluid; an aerator (12) operatively connected to the reservoir/hopper/vessel (1, 1') to selectively aerate the confection/fluid and thereby cause the fluid to undergo a transient air entrainment response period wherein the amount of air entrained in the fluid varies with respect to time; a density meter (15) operatively connected to the reservoir/hopper/vessel (1, 1') to measure the density of the confection/fluid; and a pump (11) to recirculated the fluid through a hydraulic circuit (7). The reference to Brown et al. discloses that the pressure of the confection/fluid within the hydraulic circuit (7) is within a range of two to ten atmospheres. The reference to Brown et al. fails to disclose that the pump is under a programmable control.

The reference to Pickering et al. discloses a process control system utilizing a computer (16) associated with an inverter (18) to control operation of a pump (8), which is used to control a rate of supply of a material. Modifying the apparatus of Brown et al. by providing a pump which is under programmable control would have been obvious to one of ordinary skill in the art as a means of exerting greater control in the manufacturing process by allowing an operator to control the pressure of the fluid by controlling either the pumping of material or the aeration of the material.

With respect to the limitations of claim 8, the reference to Brown et al. discloses a confectionary aeration system, comprising: aerating a confection/fluid thereby causing the fluid to undergo a transient air entrainment response period wherein the amount of air entrained in the fluid varies with respect to time; and using a density meter (15) operatively connected to a reservoir/hopper/vessel (1, 1') to measure the density of the confection/fluid. The reference to Brown discloses that the results of the density meter are used to control the aeration of the fluid material; however, the reference fails to expressly recite generating a first set of data by recording the measured density for each plurality of time values.

The reference to Pickering et al. discloses a process control system utilizing a computer (16) operatively connected to a density meter/gauge (12). The reference to Pickering et al. further discloses that the computer (16) automatically records the density values from the density gauge (12) and uses these values to maintain pre-selected density values of the material which is being recorded at any particular time. Providing a control apparatus to record density values would have been obvious to one of ordinary skill in the art as a means of providing a record of the operating conditions for further evaluation rather than relying on a transient feedback control to maintain the process.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO 01/30174 (Brown et al.) in view of US 5,902,487 (Pickering et al.) as applied to claim 1 above, and further in view of US 2003/0096719 (Hasegawa et al.).

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With respect to the limitation of claim 7, the reference to Brown et al. discloses a density meter having a vibrating tube. The reference to Pickering et al. discloses that any kind of density meter may be used; however, neither reference expressly discloses a Coriolis meter.

The reference to Hasegawa et al. discloses a method of manufacturing an aerated material whereby a product is held within a reservoir (61) which is connected with a circulating duct (62). Within the circulating duct (62) is a specific gravity meter (68) which includes a Coriolis mass flow sensor operating in a density measurement mode. Modifying the invention of Brown et al. to include a Coriolis density meter would have been obvious to one of ordinary skill in the art given that Coriolis meters are very well known in the density measuring art and are well known in their use with aerated materials.

***Allowable Subject Matter***

6. Claim 17 is allowed.

7. Claims 4, 5, and 9-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Response to Arguments***

8. Applicants' arguments with respect to claims 1 and 8 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Larkin whose telephone number is 571-272-2198. The examiner can normally be reached on 8:00 AM - 5:00 PM Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 571-272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Larkin  
AU 2856  
16 September 2005

  
**DANIEL S. LARKIN**  
**PRIMARY EXAMINER**